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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,635

04/21/2006

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40281.0001USWO

5692

23552 7590 01/11/2010
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EXAMINER

BERMAN, SUSAN W

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

01/11/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Response to Arguments

Applicant's arguments filed 12-29-2009 have been fully considered but they are not persuasive.

Jochum et al are relied upon for teaching thiol-ene dental compositions photocurable with visible light in the presence of an acylphosphine oxide photoinitiator. Jochum et al teach that the composition should contain at least 10 wt % polythiol and at least 10 wt % polyene and APO photoinitiator to avoid a smeary layer upon cure corresponding to the proposed instant recitation "cures without oxygen inhibition". The compositions require only one initiator, i.e. the acylphosphine oxide activated upon exposure to visible light. Jochum et al disclose surface hardness of the cured composition 200-250 MPa in Examples 1-2. Example 3, wherein the compositions comprises a silanized pyrogenic silicic acid filler, is said to provide a smooth dry surface and excellent elastic properties after curing. Jochum et al teach that camphorquinone is also a visible light activated photoinitiator, thus providing motivation to substitute camphorquinone for acylphosphine oxide as photoinitiator.

With respect to the teaching of Jochum et al regarding reduction of a smeary layer upon curing with visible light by reference to prior art such as DE-A-3,443,221, it is not known whether the compositions disclosed by DE '221 comprise thiol-enes or acrylates as the photocurable materials. It is not clear whether it is the photoinitiator employed or the thiol-ene materials employed in the instantly disclosed and claimed compositions result in the cure without oxygen inhibition.

Rheinberger et al are relied upon for teaching, in analogous dental compositions, that thiol-ene polymerization can be initiated by photoinitiators such as acylphosphine oxides,

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camphorquinone and 2,2-methoxy-2-phenylacetophenone (column 28, lines 20-65). Examples 7 and 11 teach the disclosed silicic acid condensate as polyene in combination with camphorquinone as initiator and “PETMP” as polythiol component cured by exposure to visible light to form a solid film with very low volume shrinkage. With respect to the proposed claim limitation of a flexural strength greater than 65 MPa, Example 11 reports a flexural strength of 89 MPa for a composition comprising polyene, polythiol, filler and camphorquinone as initiator. The resin from Example 8, a norbornene functional silicic acid condensate, meets the instant claim requirement for a monomer having vinyl functional groups. Applicant’s argument that One skilled in the art at the time of the invention would not have been motivated to combine the teachings of Jochum et al and Rheinberger et al is unpersuasive because both references are drawn to dental composition comprising polythiols and polyenes with filler and curable by exposure to light in the presence of a photoinitiator.

Furthermore, it is not clear from the data in Table 1 of the instant specification that applicant has basis for the proposed claim recitation “wherein after polymerization the material exhibits a flexural strength of greater than 65 Mega Pascals”. The Table reports a flexural strength of 112.0 ± 8.0 MPa for compositions set forth in instant claim 23 wherein the initiator is camphorquinone. The system having a flexural strength of 71.4 ± 2.7 does not contain a filler. No other mention of flexural strength has been noted in the specification as filed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Susan W. Berman/ whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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SB
1/6/2010

/Susan W Berman/
Primary Examiner
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